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Subject:	Submitting Research Paper on the Health Effects of Sugar-Sweetened Beverages
Date:	Monday, June 3, 2019 2:36:24 PM
Attachments:	Cutting the Sugar Report Final.pdf

Good Afternoon,

Working Partnerships USA is pleased to submit our research paper on sugar-sweetened beverages as part of our amended Health Care Reform Stakeholder contract with the County. Please see attached. Thank you.

Sincerely,
Bob Brownstein, Strategic Advisor
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Working Partnerships USA

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Cutting the Sugar

Sugar-Sweetened Beverages, their Health Effects, and Strategies to Reduce Consumption in Santa Clara County

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in collaboration with

Santa Clara County Public Health Department

WORKING PARTNERSHIPS USA

EXECUTIVE SUMMARY

In the last two decades, rates of obesity and diabetes have skyrocketed. One in five adults in Santa Clara County is obese and over 118,000 residents have been diagnosed with diabetes. Multiple studies have shown that excessive consumption of sugar-sweetened beverages (SSBs) is a primary contributor to these epidemics. In Santa Clara County, adult men on average consume almost 20 teaspoons of sugar per day – more than double the recommended amount.

SSB consumption has risen across all demographic groups. However, significant disparities exist, with youth, lower-income communities, and communities of color experiencing the greatest increases in consumption. As a result, these groups have also experienced equally disproportionate burdens of obesity and type 2 diabetes. The uneven distribution of access to preventive and treatment services further exacerbates the problem, leading to increased rates of diabetes-related hospitalization, particularly among African-Americans and Latinx.

Many policymakers view the problem of SSB overconsumption as one of personal choice, making them reluctant to support any broad public health interventions they perceive as invasive. However, many communities – particularly those most impacted by high rates of SSB consumption – often lack awareness and education around the issue, or may simply live in places where SSBs are the cheapest, most ubiquitous drink option.

Several legislative, regulatory, and outreach initiatives have been launched in recent years throughout the country to address these growing challenges. Of these, three prominent tactics for reducing sugary beverage consumption have recently gained national attention:

(1) Soda taxes.
(2) Mandatory warning labels on SSBs.
(3) Public outreach and education campaigns.

Soda taxes, first enacted in Berkeley, California, have been shown to dramatically reduce SSB purchasing and consumption while raising tax revenue for health promotion and prevention services. Unfortunately, a recent California law passed under extreme pressure from the

beverage industry preempts any new local soda taxes until 2031. Regulations mandating warning labels on SSBs have similarly reduced consumers' intent to purchase sugary drinks while increasing support for greater regulation of sugary drinks. However, these efforts have also been stymied by a recent decision from the U.S. 9th Circuit Court of Appeals.

In recent years, numerous public education campaigns have been launched, designed to educate the public about SSBs and their health effects. Overall, studies have shown that public education campaigns can lead to reduced consumption and increased support for regulation of SSBs. In 2019, a group of local stakeholders called the Cut the Sugar Coalition, elected to build upon the Santa Clara County Public Health Department's successful 2018 public education campaign and expand its outreach efforts to a larger segment of the county. The coalition hopes that this campaign will act as an important first step in developing a comprehensive SSB-reduction strategy that will ultimately improve the health of Santa Clara County residents and reduce the burden of preventable diseases on families, on the healthcare system, and on the overall economy.

INTRODUCTION

Americans consume more sugar than anyone else in the world, averaging three times more sugar than recommended for a healthy diet. Such high sugar consumption has led to an epidemic of obesity and type 2 diabetes that affects millions of Americans. Between 1960 and 2010, the prevalence of obesity nationwide increased threefold to 35.5 percent among men and 36.6 percent in women (Han & Powell, 2013). In Santa Clara County, one in five adults is obese; nearly half of adults are estimated to have prediabetes and over 118,000 residents have been diagnosed with diabetes (Santa Clara Public Health Department, 2018).

Aside from lowering quality of life and life expectancy, conditions such as obesity and type 2 diabetes are complicated to manage and very costly – both to patients and to the healthcare system. Obesity increases lifetime medical care costs by 50 percent, and by 100 percent for severely obese people (Hammond & Levine, 2010). People diagnosed with diabetes spend about $13,700 per year in direct medical costs – 2.3 times more than those without diabetes (American Diabetes Association, 2013). Overall, obesity costs the U.S. economy $245 billion annually, including $20.8 billion in lost economic productivity (American Diabetes Association, 2013). These conditions have strained both the healthcare system and the economy, and as a result, public health officials and policymakers have sought ways to address these conditions further upstream at its source.

FIGURE 1

Diabetes by the Numbers

118,000
People diagnosed with diabetes in Santa Clara County

684,000
People estimated to have prediabetes in Santa Clara County (diagnosed & undiagnosed)

$13,700
Annual per-person medical costs for diagnosed diabetes

$1 in 5
Healthcare dollars spent on treating people with diagnosed diabetes

$245 billion
Estimated total annual economic cost of diagnosed diabetes

Source: Santa Clara County Public Health Dept, 2018; American Diabetes Association, 2013

Multiple studies have demonstrated that sugary drink consumption increases the risk for obesity and type 2 diabetes, as well as a host of other preventable chronic diseases. According to the National Institutes of Health, sugar-sweetened beverages (SSBs) are "any non-diet, non-alcoholic beverage items and beverage concentrates with added sugars" (Han & Powell, 2013). They are grouped into four general categories: (1) regular soda; (2) regular non-diet, non-100 percent fruit juices; (3) non-diet sports and energy drinks, and (4) non-diet, non-milk based beverage concentrates, non-diet sugar-sweetened coffee and tea products, and all other SSBs (Han & Powell, 2013). The list excludes diet drinks, low calorie drinks and/or drinks with nutritional benefits, such as low-fat milk without added sugar, 100 percent fruit and vegetable juice, and unsweetened teas and coffees (Lasater, Piernas, & Popkin, 2011).

FIGURE 2

Types of Sugar-Sweetened Beverages

Source: Han et al., 2013

WHY TARGET SSBs?

While there are many types of foods with high sugar content, SSBs are notable in their ubiquity in the American diet. Some, including groups that represent the beverage industry, have argued that SSBs alone cannot be blamed for these health trends. However, multiple studies confirm that SSBs are the single largest source of added sugars, accounting for almost half in U.S. diets (US Office of Disease Prevention and Health Promotion, 2016). In addition, many studies directly link SSBs to poor health outcomes, such as obesity and type 2 diabetes.

Drinking sugary drinks puts a person at risk of developing costly chronic conditions.Two meta-analyses have shown that sugary drinks increase risk of weight gain in both adults and children (Malik, Pan, Willett, & Hu, 2013) and obesity in adults (Ruanpeng, Thongprayoon, Cheungpasitporn, & Harindhanavudhi, 2017). In addition, a recent study found that sugary drink consumption increases BMI z scores throughout childhood (Marshall et al., 2019). SSBs contribute to obesity by being high in calories, yet they do not result in individuals feeling "full" in the same way that they might when consuming other sweets. SSBs tend not to make consumers full, and high consumption is usually not offset by reductions in caloric intake in other areas (Lasater, Piernas, & Popkin, 2011).

Consuming SSBs increases risk for developing type 2 diabetes through a number of mechanisms, most notably insulin resistance resulting from obesity and fatty liver disease. The risk of developing type 2 diabetes increases 87 percent for every standard deviation increase in BMI (Vazquez, Duval, Jacobs, & Silventoinen, 2007) due to insulin resistance developed as a result of excess abdominal fat tissue (Castro, Kolka, Kim, & Bergman, 2014). Consuming SSBs also increases glycemic load to the liver, resulting in accumulation of excess fat in the liver (Maersk et al., 2012) and fatty liver disease (Ma et al., 2015). Fatty liver disease contributes to insulin resistance, increasing a person's risk of developing type 2 diabetes (Hadi, Vincenzo, Vettor, and Rossato, 2019). These studies demonstrate an undeniable connection between SSBs and developing obesity and type 2 diabetes.

To many policymakers, it may seem intuitive that the problem boils down to one of personal choice. That is, they think that in order to get healthier, individuals and households simply

need to choose not to drink SSBs, making them reluctant to support any broad public health interventions they perceive as invasive. However, many communities--particularly those most impacted by high rates of SSB consumption--may simply lack awareness and education around the issue. In many underserved communities, there may be less understanding of the harms caused by excessive SSB consumption. Extensive targeted marketing may also give people false impressions that certain SSBs, such as energy drinks and sweetened fruit juices, serve as "healthy options." For many low income households, SSBs may simply be the most affordable, most ubiquitous drink option.

CONSUMPTION

Between the late 1970s and 2006, per capita SSB consumption in the United States increased 120 percent (Malik et al., 2010). In Santa Clara County, 1 in 10 adults report drinking one or more SSBs daily (Santa Clara Public Health Department, 2018). Overconsumption of sugar disproportionately affects men, young people, people of color, and those with lower educational attainment (Ogden, Kit, Carroll, & Park, 2011).

The American Heart Association recommends limiting daily consumption of added sugar to 6 teaspoons for women over 18 and 9 teaspoons for men over 18 (Johnson et al., 2009). However, adult men overall consume an average of 19.7 teaspoons of sugar per day – 5.4 teaspoons more than women (Thompson et al., 2009). Adults 18 to 39 years old consume an average of 10.6 more teaspoons of sugar per day than those 60 years old or older and those with only a high school diploma consume an average of 3 teaspoons of sugar per day more than those with greater than a high school diploma (Thompson et al., 2009).

While 65 percent of Santa Clara County middle and high school students reported drinking one or more SSBs in the last 24 hours, that number rises to 73 percent among Latinx respondents (Santa Clara Public Health Department, 2018). Nationally, white adults consume 5.3 percent of their daily caloric intake in SSBs, compared to 8.6 percent for blacks and 8.2 percent for Mexican-Americans (Ogden, Kit, Caroll, & Park, 2011).

HEALTH TRENDS

The increases in SSB and overall sugar consumption has led to a rise in rates of obesity and type 2 diabetes, especially among youth, lower-income communities, and communities of color.

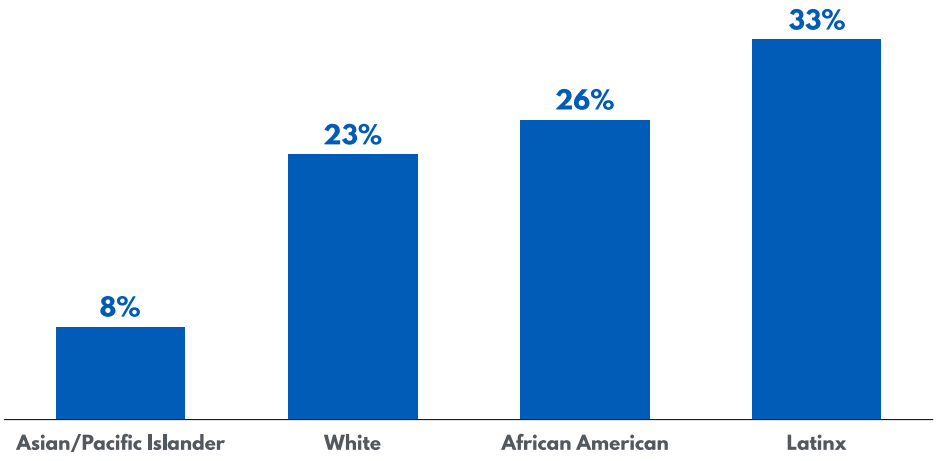
Among middle school and high school aged youth in Santa Clara County, 17 percent were obese in 2015-2016, with Latinx and African American experiencing significantly higher rates at 21 percent and 22 percent, respectively (Santa Clara Public Health Department, 2018). There has been a 36 percent increase in obesity prevalence since 2006 (Santa Clara Public Health Department, 2018).

Racial and ethnic disparities are also significant among the county's adult population. In Santa Clara County, 20 percent of all adult residents are obese (Santa Clara Public Health Department, 2018). Rates of obesity are even higher for blacks (26 percent) and Latinx (33 percent) (Santa Clara Public Health Department, 2018). Lower income households and older adults also experience higher rates of obesity (Santa Clara Public Health Department, 2018).

FIGURE 3

Obesity Rates by Ethnicity

among Santa Clara County residents



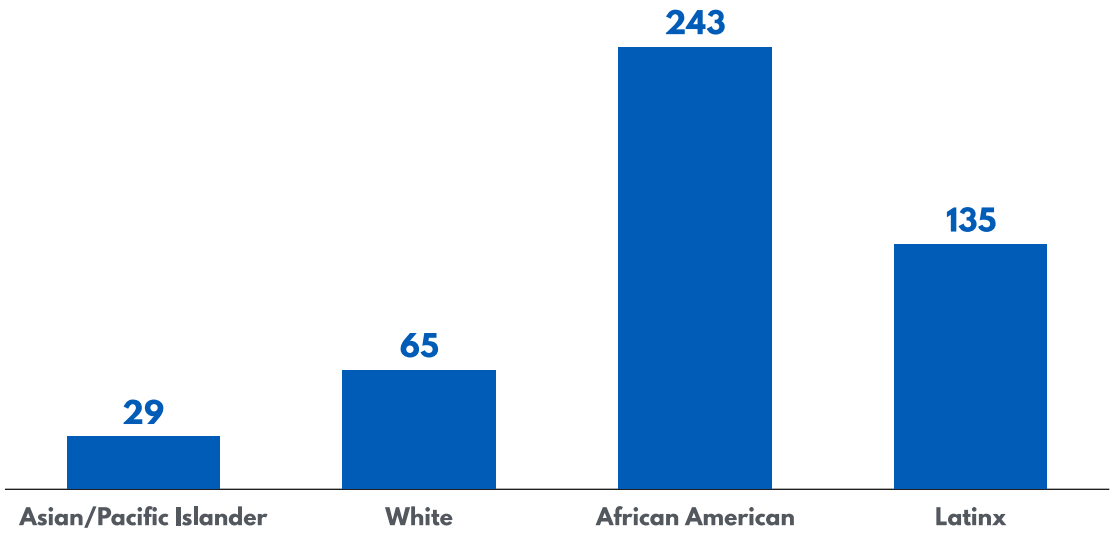
Source: Santa Clara County Public Health Department, 2018

In Santa Clara County, there are 70.5 hospitalizations per 100,000 residents due to diabetes (Santa Clara Public Health Department, 2018). However, because of the uneven distribution of access to preventive and treatment services, diabetes-related hospitalization rates are nearly double the overall rate for Latinx residents and 3.5 times for black residents (Santa Clara Public Health Department, 2018).

FIGURE 4

Diabetes-Related Hospitalizations

per 100,000 Santa Clara County residents in 2014



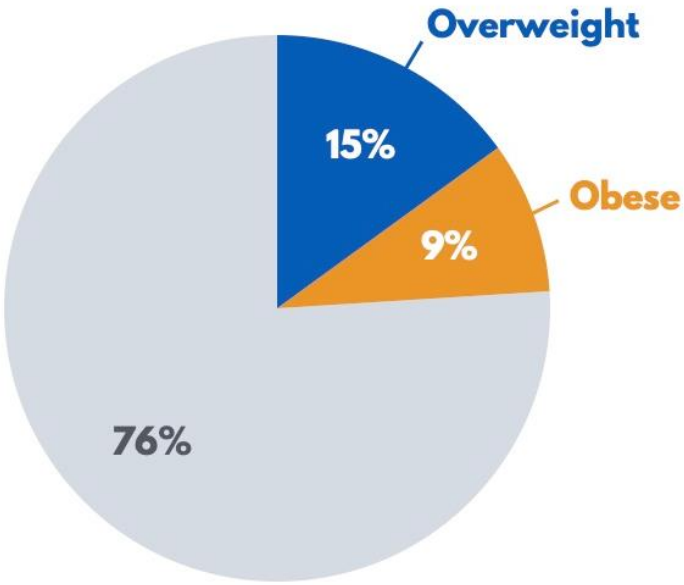
Source: Santa Clara County Public Health Department, 2018

The number of people diagnosed with diabetes and prediabetes has also increased in the last few decades. In Santa Clara County, eight percent of the population – roughly 119,000 people – have been diagnosed with type 2 diabetes (Santa Clara Public Health Department, 2018). An additional 683,000 are estimated to have prediabetes (Santa Clara Public Health Department, 2018).

FIGURE 5

Overweight and Obesity Rates

in Santa Clara County, 2015-2016



Source: Santa Clara County Public Health Department, 2018

Though these conditions result in lower quality of life and increased healthcare costs across all populations, it is clear that obesity and type 2 diabetes disproportionately impact lower income and under-resourced communities, thereby necessitating a targeted public health response.

INITIATIVES TO REDUCE SSB CONSUMPTION

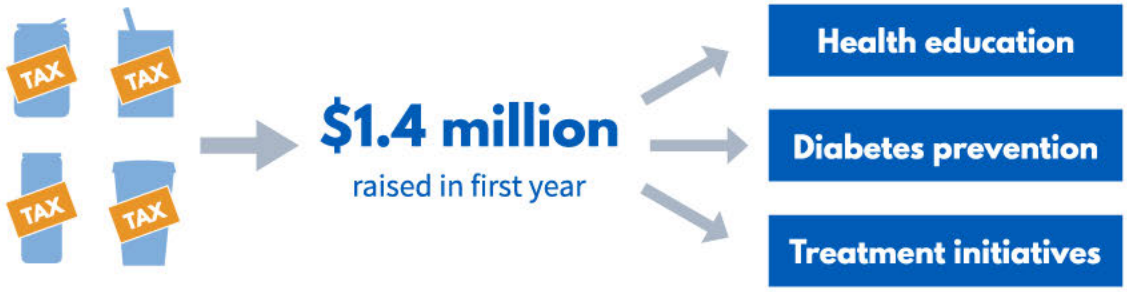
To address the obesity and type 2 diabetes epidemics, numerous legislative, regulatory, and outreach efforts throughout the country have focused on curbing the rising rates of SSB consumption. Because of the urgency of these rising trends and because of staunch opposition from the beverage industry, the effectiveness of these initiatives and the reactions to them have been well-documented. Public health officials have tried to reduce SSB consumption rates using a number of strategies. Three prominent strategies that have gained national attention include: (1) soda taxes; (2) mandatory warning labels; and (3) public outreach and education campaigns. For each, we provide an overview of the history of each of these strategies as well as an analysis of their current feasibility.

Soda Taxes

The city of Berkeley, California, was the first municipality in the United States to enact an excise tax on sugar-sweetened beverages on January 1, 2015. The ordinance levied an excise tax of one cent per fluid ounce on SSBs (Imposing a General Tax on the Distribution of Sugar-Sweetened Beverage Products Ordinance No. 7,3888-N.S., 2014). Since then, three other Bay Area cities have enacted similar soda taxes: San Francisco, Oakland, and Albany. Cities outside of California, such as Philadelphia and Boulder, CO have also enacted similar soda taxes. In its first year, Berkeley's soda tax raised over $1.4 million, which was subsequently invested in health education and diabetes prevention and treatment initiatives (City of Berkeley Public Health Division, undated).

FIGURE 6

Berkeley's Soda Tax

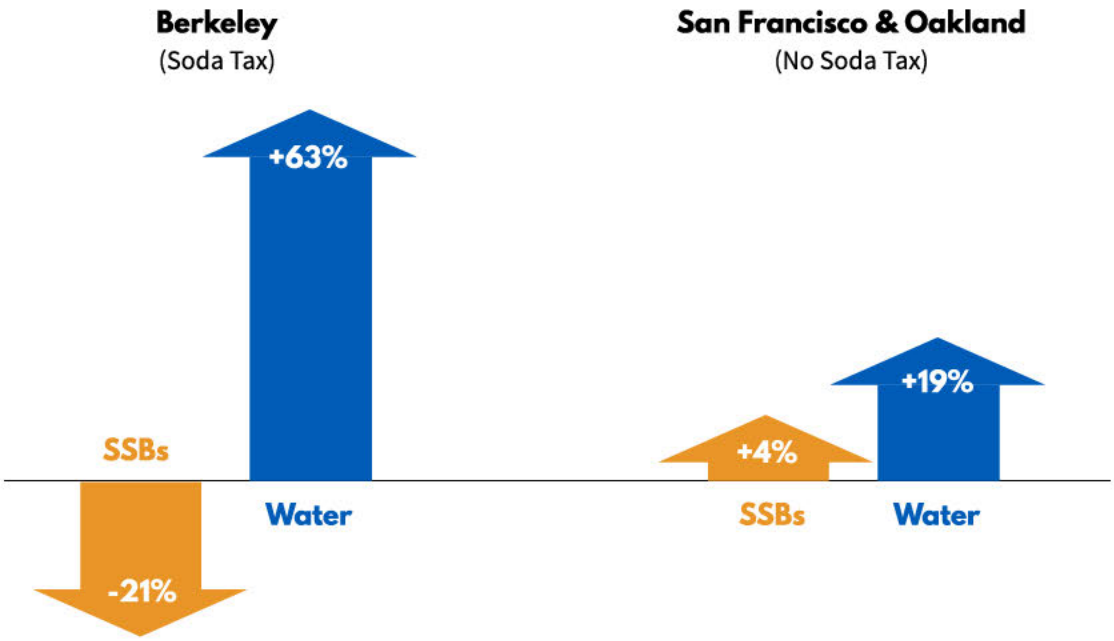


In addition to analyzing the tax revenue to fund health promotion and prevention services, a number of studies examined Berkeley's soda tax to determine whether the tax itself changed consumer behavior around SSBs. One study that analyzed over 15.5 million grocery checkouts at retailers in Berkeley noted that 100 percent of the tax was passed on to consumers for soda and energy drinks, and 67 percent of the tax was passed on for all other SSBs, such as sweetened juices, tea, coffee, and milk (Silver et al., 2017).

The impact of the soda taxes on consumption rates was even greater than originally predicted. In its first year, Berkeley's soda tax reduced SSB consumption by 21 percent, while comparison cities of San Francisco and Oakland saw a 4 percent *increase* (Falbe et al., 2016). Water consumption in berkeley also rose by 63 percent, dwarfing the 19 percent increases in comparison cities (Falbe et al., 2016). Subsequent soda taxes elsewhere have yielded comparable effects to SSB consumption. Proving that Berkeley's success was not an anomaly, Philadelphia's soda tax, enacted in 2017, led similarly to an almost 40 percent reduction in SSB purchases citywide, amounting to about 83 million fewer cans of soda consumed. (Roberto et al., 2019).

FIGURE 7

Changes in Beverage Consumption



Source: Falbe et al., 2016

Soda taxes have proven to be a very cost-effective way to reduce SSB consumption. A 2015 study found that a national soda tax would cost approximately $51 million to implement in its first year and $430 million over ten years to administer (Long et al., 2015). However, the tax would raise over $12.5 billion in new tax revenue which could be used to fund prevention and treatment services, all while saving over $23.6 billion in healthcare costs (Long et al., 2015). Overall, a nationwide soda tax would generate almost $84 in either new tax revenue or in cost savings for every dollar spent to implement and administer it.

Despite all the data supporting soda taxes as good public health policy, efforts to expand such taxes have been hampered by efforts of the beverage industry. In June of 2018, under a threat from the American Beverage Association to support a ballot measure that would severely impede local governments' ability to raise new revenue, Governor Jerry Brown signed into law a statewide ban on new soda taxes or increases in current soda taxes until January 1, 2031 (Keep Groceries Affordable Act of 2018). Pro-soda-tax advocates have since

begun to explore ways to overturn this ban through, for example, a statewide ballot measure in 2020. However, absent a change in the current legislation, new local soda taxes are off the table until 2031.

Mandatory Warning Labels

On June 15, 2015, the San Francisco Board of Supervisors voted to amend the Health Code to mandate a "black-box warning label," similar to ones mandated for cigarettes, on advertisements for SSBs (Sugar-Sweetened Beverage Warning Ordinance, 2015). The mandate required all advertisements for SSBs include the following text: "WARNING: Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay. This is a message from the City and County of San Francisco." It also required that the black box warning occupy a minimum of 20 percent of the ad.

FIGURE 8

Sample Mandatory Warning Label

Source: City and County of San Francisco

Research utilizing different study designs has shown that warning labels, similar to those on tobacco products, increase awareness of the potential health effects of SSBs and significantly reduce consumption. One study that used computational simulation modeling found that warning labels led to a 4 percent reduction in obesity using San Francisco as the base population (Yee et al., 2018). Multiple surveys also confirm this effect. One survey of 2,300 demographically and educationally diverse parents reported a 33 percent reduction in intent

to purchase SSBs among those who saw SSB warning labels when purchasing drinks for their children (Roberto, Wong, Musicus, & Hammond, 2016). The survey also found that over 70 percent of respondents supported the idea of mandatory warning labels on SSBs (Roberto, Wong, Musicus, & Hammond, 2016).

A journal article by the California Dental Association asserted that, "Lessons from the tobacco warning labels indicate SSB warning labels would not be easy to implement, but by combining emerging scientific evidence with public support and outreach of health professionals, this policy might be able to move forward and be another important tool to promote making informed decisions for healthier food choices" (Popova, 2016).

Following passage of San Francisco's SSB warning label mandate, groups representing the beverage industry, retailers, and advertising agencies sued San Francisco over its perceived violations of the First Amendment. These groups argued that the mandate was controversial, non-factual, and burdensome.

A federal judge ruled in favor of San Francisco's ordinance. However, an appeal to the U.S. Ninth Circuit Court of Appeals reversed the decision. An *en banc* panel of judges agreed that the mandate was controversial, asserting that drinking SSBs does not always lead to obesity, diabetes, and tooth decay (American Beverage Association v. City and County of San Francisco, 2019). They also ruled that the warning labels are non-factual, since (1) it created the impression that added sugars are more unhealthy than other sugars, and (2) the warning is only true for type 2 diabetes, and may be harmful to those with type 1 diabetes (American Beverage Association, California Retailers Association, California State Outdoor Advertising Association v City and County of San Francisco, 2018). Finally, the court ruled that the requirement was burdensome because it singled out SSBs while leaving out other foods and drinks that contribute to obesity, diabetes, and tooth decay (American Beverage Association, California Retailers Association, California State Outdoor Advertising Association v City and County of San Francisco, 2018).

It would be possible to amend San Francisco's legislation--and all future legislation--to work within the confines of the Ninth Circuit's decision. Strategically, however, jurisdictions should take caution, given the current political and legal landscape, when considering a mandatory

warning label. Subsequent legislation that attempts to do this will likely be challenged again in the courts. A legal challenge could potentially escalate to the Supreme Court, where the current conservative majority of the Court could issue a broad decision that not only preempts future mandatory warning labels on SSBs nationwide, but could be applied to preclude public health interventions on a wide range of issue areas.

Public Education Campaigns

In recent years, numerous public education campaigns have been launched, designed to educate the public about SSBs in order to reduce consumption. These initiatives have varied from mass media campaigns on television, radio, and social media, to school-based programming and one-on-one counseling.

In late 2018, the Santa Clara County Public Health Department (PHD) launched a public education campaign aimed at reducing SSB consumption among Latinx children. PHD's research revealed that Latinx children aged 2-11 are more than twice as likely as children in the general population to have consumed SSBs in the past 24 hours (Santa Clara County Public Health Department, 2018). The campaign featured bilingual ads on bus tails, bus shelters, and online and radio ads. Running parallel to the campaign, PHD also partnered with community- based organization SOMOS Mayfair to assist with designing culturally-relevant ads and to provide in-person outreach through their *promotora* network at key community events and festivals.

Overall, studies have shown that public education campaigns can lead to reduced consumption and increased support for regulation of SSBs. However, because these campaigns were designed, implemented, and evaluated in a number of different ways, the results, while generally positive, are difficult to compare. For example, one campaign using a combination of ads on television, billboards, transit, and the internet resulted in 80 percent of participants reporting that they intended to reduce the number of SSBs they offered to children, while reporting no intention to change their own consumption (Boles, Adams, Gredler, & Manhas, 2014). Another mass media campaign on television, radio, cinema, online, and social media, combined with stakeholder and community engagement saw reductions in SSB consumption, but only among those who drank at least four cups per day (Morley et al.,

2018). And a third campaign that focused on health presentations in addition to a media campaign led to increased support for increased SSB regulation, but had no effect on consumption rates (Durant, Lowenfels, Ren, Brissette, & Martin, 2018).

Analysis of Santa Clara County's Cut the Sugar campaign also yielded positive results. Though the campaign was relatively small in scale and concentrated in geographic areas with a high proportion of Latinx residents, it garnered over 32 million impressions and provided in-person education to 700 people. People exposed to the ads were 33 percent more likely to correctly identify sugary drinks, and those exposed to the campaign said that they intended to reduce the number of sugary drinks offered to children in their care by nearly half (Santa Clara County Public Health Department, 2018).

In light of the beverage industry's marketing campaign focused on personal choice and to counteract marketing that advocates for so-called "healthier SSB options," public education campaigns are crucial in providing accurate information to communities and in connecting them to resources and services to reduce their consumption.

THE CUT THE SUGAR COALITION

In response to the growing epidemic of obesity and diabetes in Santa Clara County, officials from the Santa Clara County Public Health Department and various stakeholders in the county established the Sugar Sweetened Beverage Coalition in 2016 to develop strategies for decreasing SSB consumption. Now called the Cut the Sugar Coalition, the group originally envisioned a three-pronged approach in its strategy to reduce SSB consumption in Santa Clara County. The original approach sought to integrate a soda tax and mandatory warning labels on beverage packaging with a broad public education campaign. However, the recent restrictions placed on soda taxes and mandatory warning labels have all but ruled out new efforts to implement these strategies.

Current members of the Cut the Sugar Coalition include stakeholders representing the following organizations:

- American Heart Association
- Collaborative for Oral Health
- FIRST 5 Santa Clara County
- Santa Clara County Dental Society
- Santa Clara County Health & Hospital System
- Santa Clara County Public Health Department
- Silicon Valley Black Chamber of Commerce
- The Health Trust
- Working Partnerships USA

Given the success of the Public Health Department's campaign, the Cut the Sugar Coalition, at its November 2018 meeting, decided that the Coalition's work in 2019 would be centered on a public education strategy that builds on the PHD's success. The Coalition's workplan used publications generated by the PHD, with some minor edits, and will create and implement an expanded distribution plan to disseminate these materials as widely as possible. The campaign's work plan timeline is detailed below:

- January-March 2019: Partnership outreach to organizations for material distribution
- March 30, 2019: Finalize print order for first round of material distribution
- May-June 2019: Distribute campaign materials
- Summer 2019: Second round of outreach to other organizations

The Coalition recruited partner organizations to help distribute campaign materials using the members' network of partners and allies. As of the writing of this paper, the following organizations have agreed to the partnership:

- Community Health Partnership & member health centers
- FIRST 5 Santa Clara County
- Santa Clara County Dental Society and member clinics
- Santa Clara County Diabetes Prevention Initiative
- Santa Clara Family Health Plan
- Santa Clara Valley Valley Medical Center
- Silicon Valley Black Chamber of Commerce

CONCLUSION

Research has consistently shown that excessive SSB consumption contributes significantly to the obesity and type 2 diabetes epidemics in Santa Clara County and across the United States. Lack of awareness and will among policymakers to pass effective SSB-reduction policies, combined with misinformation from the beverage industry on the effects of SSB consumption, have further exacerbated the problem, which disproportionately impacts youth low-income communities, and communities of color.

While it may seem intuitive and easy to reduce sugary drink consumption, in many areas of the county, SSBs are ubiquitous and cheap, creating environments that do not support individuals in choosing beverages that protect their health. The aforementioned public health interventions have been shown to successfully and significantly reduce rates of sugary drink consumption.

Now more than ever, effective public education can prove critical in providing accurate information on the health effects of SSBs, while connecting individuals and families to important health promotion resources and services. Coupled with an effective regulatory mechanism, like a soda tax or a mandatory warning label, a comprehensive SSB-reduction strategy could significantly improve the health of Santa Clara County residents and reduce the burden of preventable diseases on families, on the healthcare system, and on the overall economy.

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